

## **REMARKS**

Claims 38-50 are now pending in the application. The following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 103**

Claims 38-47 and 49-50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharood, et al. (U.S. Pat. No. 6,453,687) in view of Wiggs (U.S. Pat. No. 4,463,571) and Gromala et al. (U.S. Pat. No. 5,533,349).

Claim 48 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharood in view of Wiggs and Gromala, and in further view of Katsuki (U.S. Pat. No. 6,158,230).

These rejections are respectfully traversed.

Applicants submit that there is no suggestion or motivation to combine the teachings of Sharood with Wiggs; that such a combination renders the Sharood device inoperable for its intended purpose; and that such a combination, even if appropriate, fails to teach or suggest a system having logic circuitry that diagnoses an operating condition based upon a status of a motor protector and a moving window time average of a compressor operating in an ON condition even when Sharood and Wiggs are combined with Gromala.

Sharood fails to teach or suggest monitoring a *motor protector* of a compressor. Rather, Sharood teaches a retrofit plug for use with a refrigerator that monitors a

*compressor* run time to determine if a refrigerator door has been left open. See Sharood at Col. 27, Ins. 1-5.

Wiggs fails to teach a motor protector, and instead teaches a diagnostic system that monitors a high-pressure switch and a low-temperature switch to distinguish between a high-pressure condition and a low-temperature condition when servicing a compressor associated with a heat-pump system. See Wiggs at Col. 4, Ins. 3-25.

There is no suggestion or motivation to combine Sharood and Wiggs, and certainly no reasonable expectation of success in combining Sharood with Wiggs as the modification of Sharood by Wiggs would render the Sharood device inoperable for its intended purpose. Sharood discloses that if a compressor is on longer than expected and a rising temperature in a refrigeration compartment is detected, the retrofit plug may detect an open-door condition. See Sharood at Col. 27, Ins. 60-67. But modifying the retrofit plug of Sharood with the teachings of Wiggs such that the retrofit plug of Sharood is able to monitor a high-pressure switch and a low-temperature switch associated with the compressor would defeat the ability of the retrofit plug to determine how long the compressor has been operating, an intended feature of Sharood's retrofit plug.

More specifically, the switches of Wiggs are either in an open position, preventing operation of a compressor, or in a closed position, permitting operation of the compressor. See Wiggs at Col. 3, Ins. 22-29 and Ins. 44-53. If the compressor experiences a fault, one of the switches may be opened to prevent operation of the compressor. Whichever switch is opened indicates the type of fault experienced by the compressor. See Wiggs at Col. 4, Ins. 4-25.

But monitoring how long either switch is in the open position or the closed position cannot be used to determine a compressor run time, and therefore is not useful in determining whether a refrigerator door is open. Monitoring the switches may indicate that operation of the compressor is *permitted*, but not that the compressor has been running for that same period of time. Thus, modification of Sharood by Wiggs to monitor a length of time either switch is open or closed does not indicate compressor run time, thereby preventing the Sharood device from detecting an open-door condition.

Assuming, *arguendo*, that Sharood and Wiggs may be combined, Applicants submit that the combination of Sharood and Wiggs with Gromala fails to teach or suggest diagnosing an operating condition based upon a status of a motor protector and a moving window time average of a compressor operating in an ON condition.

First, Sharood teaches monitoring a compressor, not a motor protector. Second, Wiggs does not disclose monitoring a motor protector of a compressor, making the combination with Sharood inappropriate and inoperable. Third, while Gromala teaches a microcontroller (601) that calculates compressor “on” and “off” times, such information is not used to diagnose a compressor. Rather, Gromala discloses that average compressor “on” and “off” times are used to determine changing ambient conditions such as room temperature. See Gromala at Col. 5, Ins. 12-30 and Ins. 49-55. Therefore, Gromala does not teach diagnosing an “operating condition” based on a moving window time average of a compressor, but rather, teaches using a compressor operating parameter (i.e., “on” and “off” times) to determine changes in ambient temperature.


Because the cited art of record fails to teach or suggest diagnosing an operating condition based upon a status of a motor protector and a moving window time average of a compressor operating in an ON condition, Applicants respectfully submit that Claim 38, as well as Claims 39-50, dependent therefrom, are in condition for allowance. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

#### CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By:   
Michael Malinzak  
Reg. No. 43,770  
Matthew H. Szalach  
Reg. No. 53,665

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

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